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ABSTRACT

This scope and sequence guide, developed for a data processing vocational education program, represents an initial step in the development of a systemwide articulated curriculum sequence for all vocational programs within the Metropolitan Nashville Public School System. It was developed as a result of needs expressed by teachers, parents, and the business community for sequential structure within the vocational education curriculum. The guide contains an introduction, course description, general course objectives, course content (with specific objectives) in outline format, and a list of resource materials, such as textbooks, curriculum guides, and audiovisual aids. Course content includes principles of data processing and their relation to business and industry; computers--their characteristics and functions; and job qualifications for the various disciplines in the computer and data processing fields. The course also provides the student with an understanding of such key topics as the history of data processing, the operation of various types of data processing equipment, and the application of the different data processing methods to typical business situations. Students who successfully complete this course using data entry equipment should be qualified for an entry-level position. (If no equipment is available, students can complete the course using available materials and equipment.) (KC)

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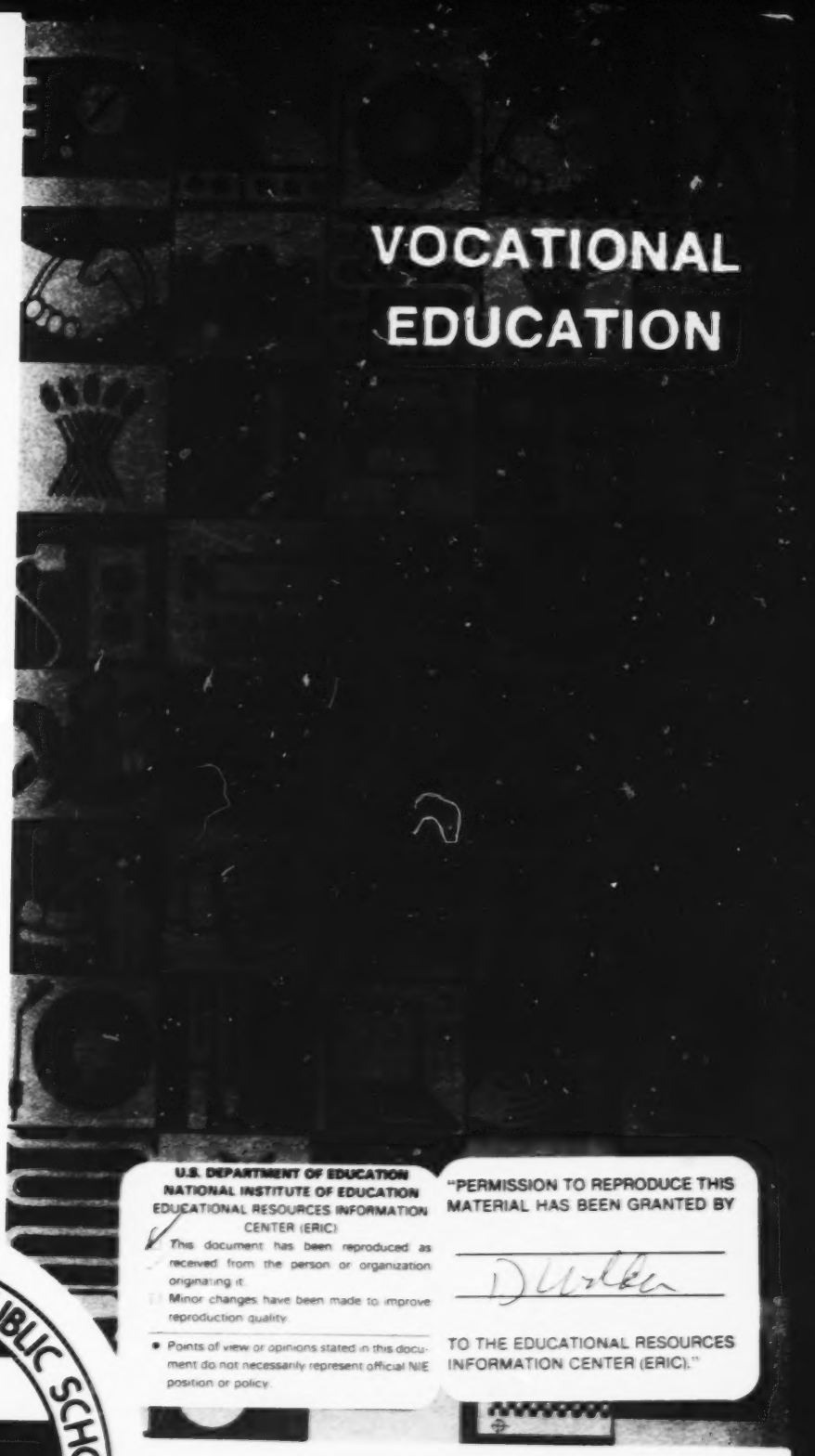
VOE DATA PROCESSING

SCOPE AND SEQUENCE



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SCOPE AND SEQUENCE

FOR

VOE INTRODUCTION TO DATA PROCESSING

FOREWORD

This scope and sequence guide, developed for the VOE Introduction to Data Processing Vocational Education program, represents an initial step in the development of a systemwide articulated curriculum sequence for all vocational programs within the Metropolitan Nashville Public School System. It is a direct result of needs expressed by teachers, parents, and the business community for sequential structure within the vocational education curriculum. An articulated vocational curriculum allows a student to move from one level of instruction to the next without repeating learning tasks already mastered, and without experiencing gaps in the presentation of relevant instructional material.

A goal of this curriculum effort is to provide teachers a usable guide based on input from the teachers. The initial step was an identification of course content, with all teachers having an opportunity to contribute. What follows is a publication using the teachers' contributions: a sequential listing of objectives and skills for each program offering.

This guide does not include all specific resource materials that may be used to assist students in acquiring minimum competencies. It is to serve as a guide for the sequence of course content and scope of what is to be taught. This guide content is extremely important and its use is encouraged. The suggested competencies and resource materials allow instructors an opportunity to be creative and resourceful in meeting the needs of individual programs and students.

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INTRODUCTION

VOE Introduction to Data Processing is a one year course that is offered to students of the Metropolitan Public Schools in grades 9 through 12. The prerequisite for this course is one semester of typewriting ONLY if data entry equipment is available.

VOE Introduction to Data Processing is designed to meet the needs of two types of students—those who must be familiar with the concepts and applications of data processing as they affect all business careers and those who will pursue a career specifically in business data processing. Students who successfully complete this course using data entry equipment should be qualified for an entry level position.

If keypunch equipment is available, the contents of Roman Numeral III in the course outline should be followed. However, if no equipment is available, students will complete the course outline using available materials and equipment.

COURSE DESCRIPTION

VOE Introduction to Data Processing explores the field of data processing, its methods, jobs and equipment. It involves principles of data processing and their relation to business and industry; electronic computers—their characteristics and functions and job qualifications for the various disciplines in the computer and data processing fields. It also provides the student with an understanding of such key topics as the history of data processing, the operation of various types of data processing equipment and the application of the different data processing methods to typical business situations.

The availability of data entry equipment develops competency in typical office functions. If equipment is not available, the course may be taught using practice sets, workbooks or other supplementary materials.

GENERAL COURSE OBJECTIVES

1. To train qualified students for entry level positions in the data processing field in business and industry
2. To provide students with academic training in the area of data processing concepts, computer programming, computer operations, systems concepts and communication/supervisory functions
3. To prepare students for interaction with fellow workers and supervisors
4. To enable students to communicate effectively
5. To train students for skill development in the operation, control and management of computer systems, equipment and other data processing devices
6. To provide a curriculum of maximum flexibility for the various types of school programs
7. To teach students to become ethical business persons

COURSE CONTENT FOR VOE INTRODUCTION TO DATA PROCESSING

(First and Second Semesters)

I. **Growth and importance of data processing (2 weeks)**

Specific objectives:

To become familiar with the terminology surrounding the history and growth of data processing
To learn what data processing is and why data is processed

A. History

1. Learns early origin

2. Becomes familiar with pioneers and early computers

3. Understands evolutions of computers

B. Concepts

C. Operations

II. **Methods of processing data (16 weeks) (without data entry equipment)**

Specific objectives:

To identify and apply the basic operations common to all data processing systems
To become familiar with the terminology and equipment surrounding the various data processing methods

A. Manual processing

B. Mechanical processing

C. Punched card and unit record processing

D. Electronic processing

III. **Introduction to basic machine operation (16 weeks) (with data entry equipment)**

Specific objectives:

Specific objectives continued:

To punch number drills using the touch method
To learn how to punch program cards
To learn how to remove and mount a program card
To punch simple jobs using numeric and alphabetic data under programmed control
To become familiar with the terminology of the equipment available

A. Equipment

1. Understands parts
2. Understands maintenance
3. Understands safety
4. Understands operational features

B. Finger drills (touch method)

1. Punches numeric drills
2. Punches alphabetic drills

C. Program card

1. Learns program codes
2. Removes and mounts program cards
3. Prepares and punches program cards

D. Job assignments

1. Performs simple jobs containing numeric and alphabetic data under programmed control
2. Performs special projects (jobs similar to work actually assigned to a keypunch operator in an office)
3. Verifies information (if equipment is available)
4. Completes work sheets with machine terminology

IV. Computers and business (13 weeks)

Specific objectives:

To be able to explain how the computer can and does benefit the daily lives of individuals
To become familiar with the terminology surrounding computer hardware and software
To be able to write simple computer programs using either BASIC, COBOL OR FORTRAN languages
To operate a computer system by inputting programs written (if equipment is available)

A. Computers in society

1. Understands effects on daily life
2. Understands effects on business
   a. Entertainment
   b. Science and engineering
   c. Sports
   d. Transportation
   e. Humanities
3. Explores future uses

B. Computer hardware

1. Identifies and uses input/output devises
2. Identifies and uses storage (memory) devices
3. Understands central processing unit
4. Understands modern computer systems
   a. Micro
   b. Mid

B. Computer Hardware

4. Understands modern computer systems continued:

c. Large-scale

5. Knows peripheral devices

a. Magnetic media

b. Keyboard devices

c. Paper media

d. Optical media

C. Computer software

1. Understands number system

2. Understands program flowchart

3. Explores programming languages

a. BASIC

b. COBOL

c. FORTRAN

D. Computer operations

1. Tests and debugs a computer program

2. Documents a computer program

V. **Business data processing systems (4 weeks)**

Specific objectives:

To be able to explain how the various methods of business data processing can combine to form a data processing system
To apply the key steps of setting up a data processing system to a business application

A. Organization of a data processing system

V. **Business data processing systems continued:**

B. Business data processing system

1. Prepares payroll

2. Prepares inventory

3. Prepares orders and billings

VI. **Careers in data processing (1 week)**

Specific objectives:

To learn about qualifications, duties and salaries of careers in data processing
To determine the best career path to pursue

A. Career areas

1. Explores data entry operator functions

2. Explores computer operator functions

3. Explores computer programmer functions

4. Explores systems analyst functions

5. Explores other related careers

B. Requirements

C. Salaries

RESOURCE MATERIALS

Textbooks

Bux, William E. Keypunch Training Course, Third Edition. Cincinnati: South-Western Publishing Company, 1975.

Couger, J. Daniel and McFadden, Fred R. A First Course in Data Processing. New York: John Wiley & Sons, Inc., 1977.

Fuori, William, et. al. Introduction to Computer Operations. New York: McGraw-Hill Publishing Company, 1973.

Pactor, Paul. Card-Punch Machine Operation, Book Two. New York: McGraw-Hill Publishing Company, 1972.

Prosser, W. Robert. Keypunch Projects. Chicago: H. M. Rowe Company, 1971.

Robichaud, Beryl, et. al. Introduction to Data Processing, Second Edition. New York: McGraw-Hill Publishing Company, 1977.

Shelly, Gary B. and Cashman, Thomas J. Introduction to BASIC Programming. Fullerton, California: Anaheim Publishing Company, 1982.

Wanous, S. J., et. al. Fundamentals of Data Processing. Cincinnati: South-Western Publishing Company, 1981.

Wanous, S. J., et. al. Fundamentals of Data Processing, Second Edition. Cincinnati: South-Western Publishing Company, 1981.

Computer Literacy. Random House,

Curriculum Guides

Articulated Curriculum Guide. Memphis: State of Tennessee, Department of Education, Division of Vocational-Technical Education, 1979.

Audio Visual

Filmstrips

"How Computers Work", Encyclopedia Britannica Educational Corp., 1972.

1. The Computer System
2. Software and Hardware at Work
3. Number Systems: The Computer Vocabulary
4. Programming: How to Order a Computer Around
5. Input/Output: How Computers Read and Write
6. The History of the Computer

"Your Working Future: Computer Careers", Encyclopedia Britannica Educational Corporation, 1973.

"Computer Programming", Educational Activities, Inc., Freeport, New York, 1978.

1. Basic for Microcomputers - FSC397
2. Advanced BASIC Techniques - FSC384